CS227 MINI Project

(Project Report)

TEAM MEMBER 1–

AYUSH BHASKAR SINGH

(2101MC56)

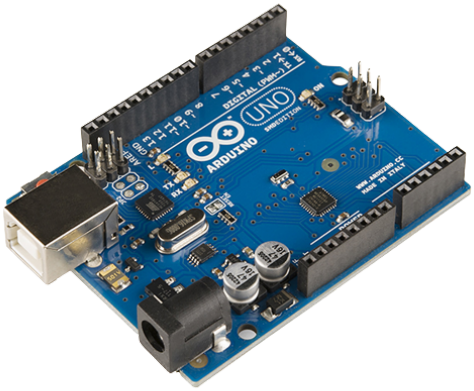
We have made a Bluetooth-enabled RC Car and an IoT-based Charge monitoring system. The calculated charge of the battery can be sent to the owner's mobile phone over a WiFi network and can help to counter the problem of overcharging as well can be used to see if the battery has optimal health by obtaining the discharge graph all on Arduino IoT Cloud Platform.

INDIVIDUAL CONTRIBUTION:

Made Bluetooth Enabled RC CAR using L-293D Motor Driver And ARDUINO UNO and a Battery Percentage estimator and displaying it on LCD DISPLAY using I2C module.

COMPONENTS USED

➔ ARDUINO UNO



→ Arduino Uno is a microcontroller board based on the ATmega328P (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator (CSTCE16M0V53-R0), a USB connection, a power jack, an ICSP header, and a reset button.

➔ HC05V BLUETOOTH MODULE

Usually, it connects **small devices like mobile phones using a short-range wireless connection to exchange files**. It uses the 2.45GHz frequency band. The transfer rate of the data can vary up to 1Mbps and is in range of 10 meters. The HC-05 module can be operated within 4-6V of power supply.

➔ MOTOR DRIVER(L-293D)

It is used to operate the motors as Arduino Works on the 5V and standard motors need 9V to operate so it helps to provide that extra voltage using voltage we used L-293D which can support 4 motors simultaneously.

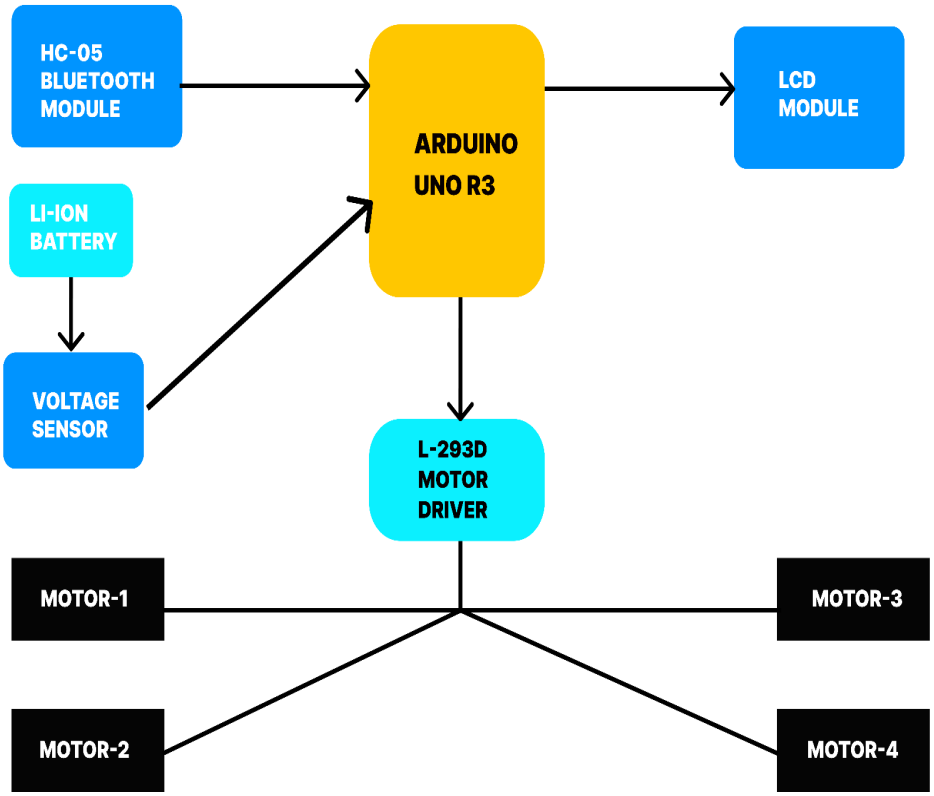
➔ VOLTAGE SENSOR

It is a device used to detect the battery's output. It works on the principle of voltage divide.

➔ Li-ION BATTERY(18650 2500mAH)

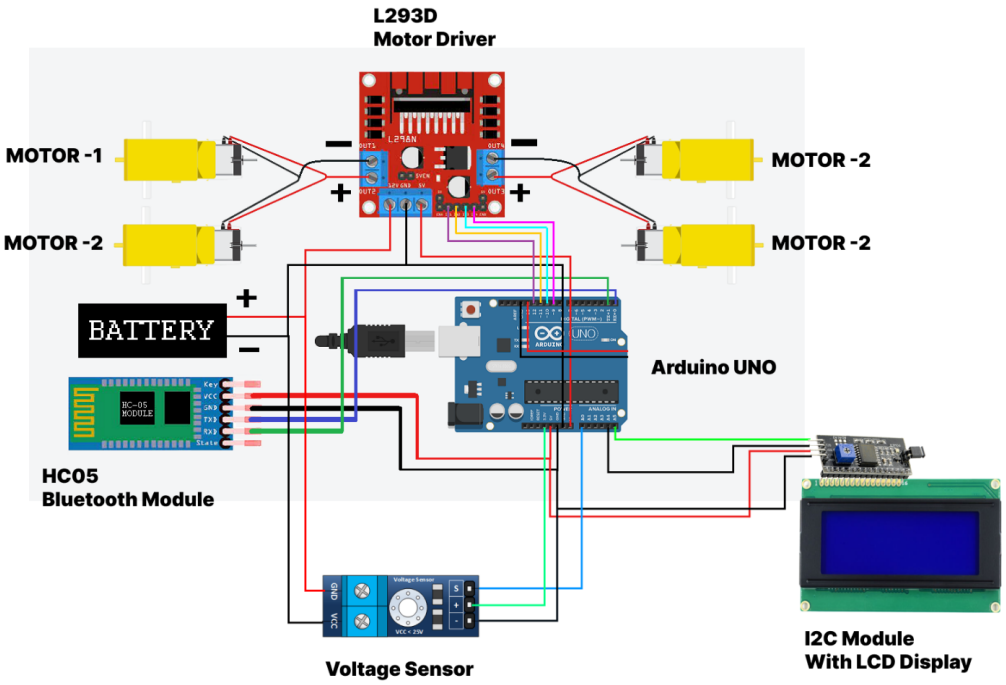
It is used as a power source providing 3.7V as nominal Voltage. It has the highest voltage supply of 4.2V and cutoff voltage of 2.8V.

BLOCK DIAGRAM



BLUETOOTH-ENABLED RC CAR

CIRCUIT DIAGRAM



USES AND APPLICATIONS

- It can be used for research work in areas humans cannot go which include extreme climate or heavy terrains.

- The battery indicator can be used to get the real-time charge. The typical problem faced nowadays to RC car users is that they charge the battery when it is completely discharged and have no idea when the battery is full which reduces the battery life.